## APPENDIX B
# HAND GRENADE SAFETY CONSIDERATIONS

*As simple as the fragmentation hand grenade may seem, it is a very powerful and dangerous weapon. Soldiers must understand the fatal effects that might take place with a hand grenade training accident. Since 1990, a number of fatal accidents have happened throughout training areas within the US. These training accidents have been recorded with basic training soldiers as well as seasoned soldiers within our armed forces. This appendix lists precautions and other considerations to be followed by hand grenade users. It should be used with Appendix A, Live Hand Grenade Range Operations Checklist, to educate leaders to safely conduct hand grenade training.*

## B-1. GENERAL PRECAUTIONS

Observe general precautions applicable to the use of any ammunition. More specific instructions to grenade users include the following:

a. Do not open the grenade containers or remove the protective devices until just before use.

b. Never make unauthorized modifications to hand grenades.

c. Do not remove the safety clip or the safety pin until the grenade is about to be thrown.

(1) A safety clip can be removed and reattached to a hand grenade if the safety pin is still in place.

(2) Never attempt to reinsert a safety pin into a bursting hand grenade during training. In combat, however, it may be necessary to reinsert a safety pin into a bursting grenade. Take special care to replace the pin properly. If the tactical situation allows, it is safer to throw the grenade rather than to trust the reinserted pin. Safety pins may be replaced in smoke and burning riot-control grenades.

## B-2. TRAINING PRECAUTIONS

Treat any thrown grenade that fails to detonate as a dud, regardless of safety pin, safety clip, or safety lever status.

a. Know the status of the grenade.

(1) SAFE—a grenade with all safety devices intact.

(2) LIVE—a thrown grenade from the instant it is released until the expected fuze time has elapsed.

(3) DUD—a thrown grenade that failed to detonate after the expected fuze time has elapsed.

b. During training, the pit NCO determines a dropped grenade's status (safe, live, or dud).

c. Throwers must consider the flight path of the grenade to make sure no obstacles alter the flight of the grenade or cause it to bounce back toward them.

d. Make sure that the impact area is level and free of debris before throwing the casualty-producing hand grenade in training.

e. Do not handle, approach, recover, or otherwise tamper with dud grenades. Explosive ordnance disposal (EOD) personnel handle dud grenades.

f. Observe caution when using hand grenades with igniting type fuzes (M14-TH3, AN-M18, M7A2/A3, and AN-M83). These grenades ignite with a flash and should be thrown at least 10 meters from all personnel to avoid hazardous conditions.

## B-3. DUDS

Duds must be regarded as dangerous. The following procedures must be followed if a grenade does not detonate:

a. **M69 Practice Grenade**. Wait 5 minutes before defuzing the M69 practice grenade. Keep the bottom of the grenade oriented in a safe area. Place the dud fuze in a sand-filled container and return it to the issuing facility.

b. **Fragmentation Grenade**. The thrower and supervisor wait in the throwing pit for 5 minutes before returning to a covered area. Notify EOD immediately. Do not throw any hand grenades into the area of the dud until it has been neutralized. If range facilities provide, continue training on adjacent impact area separated by berms.

## B-4. DROPPED LIVE HAND GRENADES

If a casualty-producing grenade is dropped accidentally after the safety pin has been removed, the throwing pit safety NCO is responsible for reacting accordingly. He is responsible for the safety of the thrower, and he decides what actions are the most appropriate. His actions are dependent upon many factors, such as the safety design of the throwing pit, the location of the dropped grenade, the location of the thrower, and possibly his ability to physically move the thrower. All of these factors need to be considered before the safety pin is pulled.

a. **Throwing Pit With Knee Wall**. It is recommended that all throwing pits for live grenade training have knee walls (Figure B-1). Knee walls provide the quickest and safest means of reacting to a dropped grenade. In most instances, the throwing pit safety NCO reacts to a dropped live grenade by yelling GRENADE to alert all other personnel in the area and by physically pushing the thrower over the knee wall, then falling on top of him. If a hand grenade is dropped over the knee wall, the throwing pit safety NCO yells GRENADE and forces the thrower to the ground inside the throwing pit.

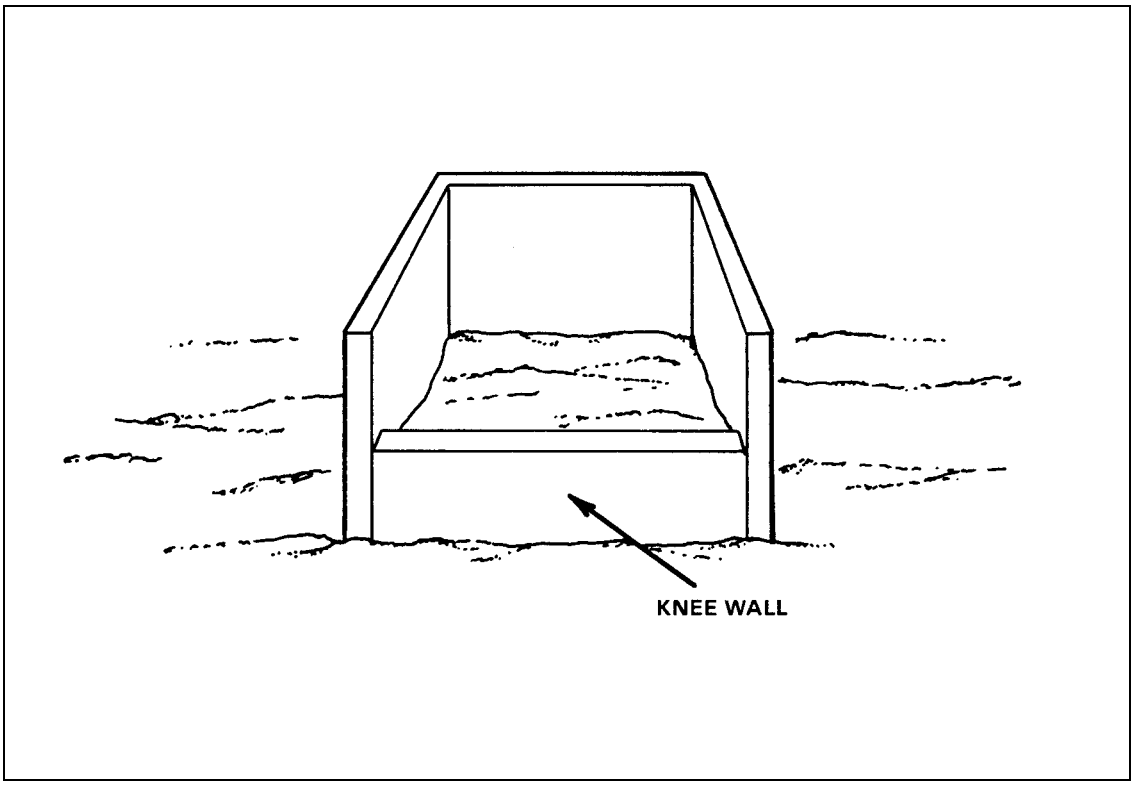


**Figure B-1. Throwing pit with knee wall.**

b. **Throwing Pit Without Knee Wall**. Throwing pits that do not have knee walls must have safety pits attached to both sides (Figure B-2). In most instances, the throwing pit safety NCO reacts to a dropped live grenade by yelling GRENADE to alert other personnel in the area and by physically moving the thrower out of the throwing pit and into a safety pit. If the hand grenade is dropped to the rear of the throwing pit, the throwing pit safety NCO yells GRENADE and forces the thrower over the front of the throwing pit. He follows the thrower over the wall. The safety NCO's first responsibility is the thrower's safety. His immediate action must be to remove the thrower from the danger area.

c. **Sumps**. Do not kick or throw grenades into sumps. In response to a dropped grenade, soldiers move from the danger area and drop to the prone position with Kevlars facing the direction of the grenade. This reduces the soldiers' exposure and increases the protection of the Kevlars.

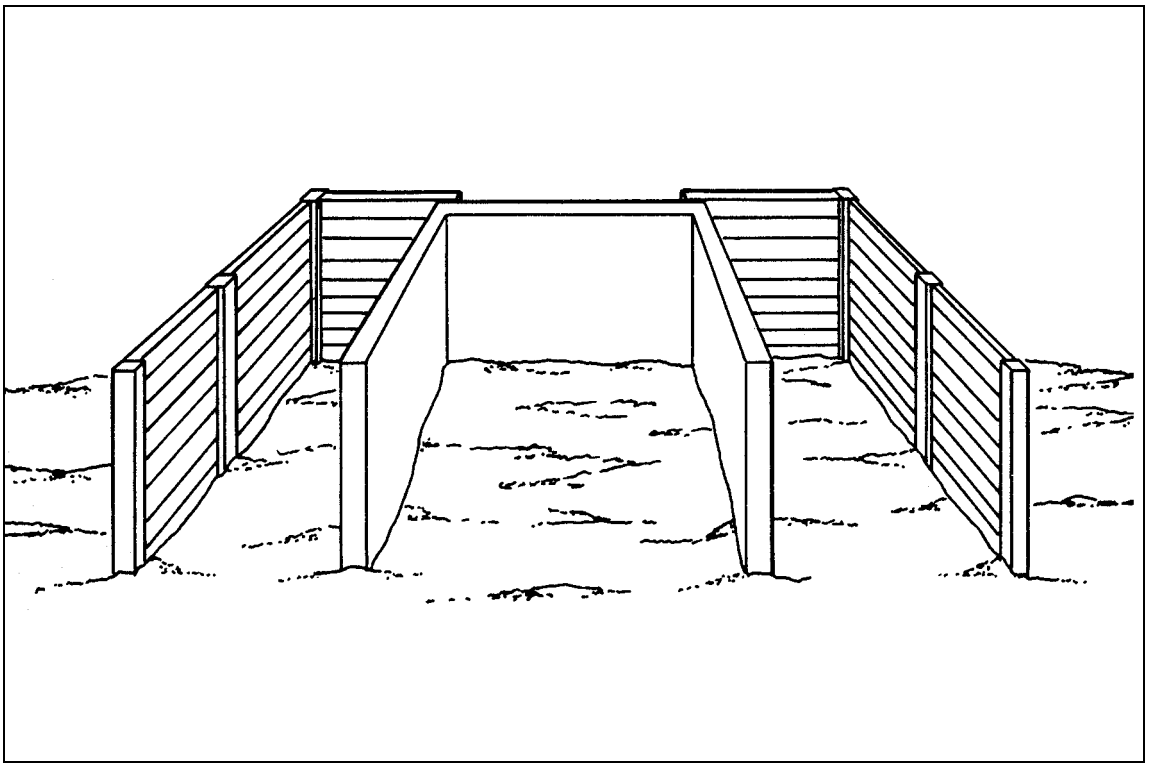

**Figure B-2. Throwing pit with safety pits.**

## B-5. PROPER GRIP

Hold the safety lever firmly. An insufficient grip on the safety lever could result in the striker rotating and striking the primer that ignites the delay element. This can occur on most grenades without the safety lever being detached from the grenade.

## B-6. HELICOPTERS

Do not throw fragmentation grenades from low flying or hovering helicopters. The fragments present a hazard to the aircraft and its passengers. Generally, throwing hand grenades from medium- or high-flying helicopters is limited to mission-critical situations.

## B-7. AIRBORNE

During training missions, do not attach hand grenades on ammunition pouches during airborne operations. Carry the grenades in the main body of the rucksack instead. During wartime conditions, it is essential that soldiers are prepared to engage the enemy as soon as the chopper hits the ground; therefore, soldiers must carry their grenades in their ammunition pouches with the secondary safety removed. The following are suggested techniques to be used during training missions.

a. Before removing grenades from canisters, make sure inspection procedures are followed IAW TM 9-1330-200-12. Remove grenades from canisters and tape the safety pin and safety lever to the grenade. Fold back the tape for a quick release.

b. Return grenades to the canister for carrying. When taking out grenades, inspect them again to make sure tape and safeties are intact.

## B-8. ENVIRONMENTAL PROTECTION

All leaders, trainers, and soldiers must comply with environmental laws and regulations. The leader must identify the environmental risks associated with training individual and collective tasks. Trainers must work to reduce and avoid damage to training areas and environment caused by realistic training. Environmental risk management parallels safety risk management and is based on the same philosophy. Environmental risk management consists of the following steps:

a. **Identify Hazards**. Identify the potential sources for environmental degradation during the analysis of METT-T factors. This requires identification of environmental hazards. An environmental hazard is a condition with the potential for polluting air, soil, or water or destroying cultural or historical artifacts.

b. **Assess Hazards**. Analyze the potential severity of environmental degradation by using the environmental risk assessment matrixes in FM 3-100.4 and the example risk management worksheet shown in Figure B-3. The severity of environmental degradation is considered when determining the potential effect an operation may have on the environment. The risk effect value is defined as an indicator of the severity of environmental degradation. Quantify the risk to the environment resulting from the operation as extremely high, medium, or low using the environmental assessment matrixes.

c. **Make Environmental Risk Decisions**. Make decisions and develop measures to reduce high environmental risks.

d. **Brief Chain of Command**. Brief the chain of command (to include installation environmental office, if applicable) on proposed plans and pertinent high-risk environmental matrixes. Risk decisions are made at a level of command that corresponds to the degree of risk.

e. **Implement Controls**. Implement environmental protection measures by integrating them into plans, orders, SOPs, training performance standards, and rehearsals.

f. **Supervise**. Supervise and enforce environmental protection standards.

## RISK MANAGEMENT WORKSHEET

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 1 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 1(A). RANGE/ GENERAL SITUATIONAL AWARENESS | | | | **THE RANGE OFFICER IN CHARGE (OIC)/SAFETY OFFICER (RSO) WILL DO THE FOLLOWING**:<br><br>1. READ AND REVIEW THE RISK ASSESSMENT.<br><br>2. ENSURE CADRE COMBAT LIFESAVERS AND A DEDICATED EVACUATION VEHICLE ARE AVAILABLE. INVENTORY COMBAT LIFESAVER'S FIRST AID BAG OF THE TRAINING COMPANY. CONSULT WITH TRAINING COMPANY CADRE TO IDENTIFY PROBLEM SOLDIERS – SUICIDAL OR HOMICIDAL INTENT OR GESTURES, OR DEMONSTRATION OF SERIOUS EMOTIONAL ADJUSTMENTS.<br><br>3. IDENTIFY SOLDIERS WITH MEDICAL PROBLEMS HAVING THE POTENTIAL TO IMPACT TRAINING TO INCLUDE MINOR ILLNESSES, ALLERGIES, PREVIOUS HEAT AND/OR COLD WEATHER INJURIES, OR ENVIRONMENTAL SENSITIVITIES.<br><br>4. REVIEW EVACUATION PROCEDURES AND REPORTING PROCEDURES FOR SERIOUS INCIDENTS. PLAN TO EVACUATE SOLDIERS WITH ALLERGIC REACTIONS, ANYONE WITHIN 25 METERS OF A LIGHTNING STRIKE, COLD WEATHER/HEAT INJURIES, SNAKEBITE, OR ANYONE SHOWING SYMPTOMS BEYOND THE RANGE OIC'S EXPERIENCE AND THE COMBAT LIFESAVER'S ABILITY TO TREAT. THE OIC/RSO WILL DIRECT AN AIR MEDEVAC WHEN THE DANGER OF LOSS OF LIFE, LIMB, OR EYESIGHT EXISTS.<br><br>5. ASCERTAIN WHAT TYPE OF TRAINING THE UNIT HAS DONE FOR THE PREVIOUS 24 HOURS AND THE AVERAGE AMOUNT OF REST THE SOLDIERS HAVE BEEN ALLOWED.<br><br>6. CONDUCT DAILY RISK ASSESSMENT IN CONSULTATION WITH TRAINING COMPANY CADRE REPRESENTATIVES. | | | |

**INITIAL OVERALL RISK:** EXTREMELY HIGH | **HIGH** | MEDIUM | LOW **RISK ACCEPTANCE: Type signature block, and sign.**

**RESIDUAL OVERALL RISK:** EXTREMELY HIGH | **HIGH** | MEDIUM | LOW

| | | | |
|---|---|---|---|
| _____ | _____ | _____ | _____ |
| ARDRELLE L. EVANS<br>CPT, IN<br>Commanding | GORDON B. DAVIS, JR.<br>LTC, IN<br>Commanding | RICHARD J. ROWE, JR.<br>COL, IN<br>Commanding | CARL F. ERNST<br>MAJOR GENERAL, USA<br>Commanding |

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**Figure B-3. Example of risk management worksheet.**

## RISK MANAGEMENT WORKSHEET
*CONTINUATION*

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 2 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 1(B). HEAT. | D<br>REMOTE | I<br>CATASTROPHIC | HIGH | 1. THE TRAINING UNIT WILL MONITOR WET BULB FOR HEAT CATEGORY. PREVIOUS HEAT INJURIES WILL BE MONITORED THROUGH THE BUDDY SYSTEM, TRAINING COMPANY CADRE, AND INSTRUCTORS.<br><br>2. HEAT CATEGORIES WILL BE ENFORCED AS FOLLOWS:<br><br>HEAT CAT / WBGT INDEX F / EASY WORK / EASY WATER / MODERATE WORK / MODERATE WATER / HARD WORK / HARD WATER<br>1 / 78-81.9 / NL / ½ / NL / ¾ / 40/20 / ¾<br>2 / 82-84.9 / NL / ½ / 50/10 / ¾ / 30/30 / 1<br>3 / 85-87.9 / NL / ¾ / 40/20 / ¾ / 30/30 / 1<br>4 / 88-89.9 / NL / ¾ / 30/30 / ¾ / 20/40 / 1<br>5 / >90 / 50/10 / 1 / 20/40 / 1 / 10/50 / 1<br><br>**EASY WORK**<br>• WEAPON MAINTENANCE<br>• WALKING HARD SURFACE AT 2.5 MPH, 30 LB LOAD<br>• MANUAL OF ARMS<br>• MARKSMANSHIP TRAINING<br>• DRILL AND CEREMONY<br><br>**MODERATE WORK**<br>• WALKING LOOSE SAND AT 2.5 MPH, NO LOAD<br>• WALKING HARD SURFACE AT 3.5 MPH, LESS THAN 40 LB LOAD<br>• CALISTHENICS<br>• PATROLLING<br>• INDIVIDUAL MOVEMENT TECHNIQUES, I.E., LOW CRAWL, HIGH CRAWL<br>• DEFENSIVE POSITION CONSTRUCTION<br>• FIELD ASSAULTS<br><br>**HARD WORK**<br>• WALKING HARD SURFACE AT 3.5 MPH, MORE THAN 40 LB LOAD<br>• WALKING LOOSE SAND AT 2.5 MPH WITH LOAD<br><br>3. DAILY WATER INTAKE SHOULD NOT EXCEED 12 QTS.<br><br>4. EVACUATE HEAT CASUALTIES IN ACCORDANCE WITH SERIOUS INCIDENT GUIDELINES/POST REQUIREMENTS. | E<br>UNLIKELY | I<br>CATASTROPHIC | MEDIUM |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
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**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 3 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 1(C). COLD | E<br>UNLIKELY | I<br>CATASTROPHIC | MEDIUM | 1. ALL SOLDIERS WITH PREVIOUS COLD INJURIES WILL BE IDENTIFIED AND CLOSELY MONITORED THROUGH THE BUDDY SYSTEM, TRAINING COMPANY CADRE, AND INSTRUCTORS.<br><br>2. **IMMERSION FOOT:**<br>CAUSE: PROLONGED IMMERSION IN COLD WATER, USUALLY IN EXCESS OF 12 HOURS AT TEMPERATURES BELOW 50 DEGREES F.<br><br>3. **TRENCH FOOT:**<br>CAUSE: EXPOSURE TO WETNESS AND COLD BETWEEN FREEZING AND 50 DEGREES FAHRENHEIT, LASTING HOURS TO SEVERAL DAYS.<br><br>4. **FROST BITE:**<br>CAUSE: EXPOSURE TO COLD AT TEMPERATURES OF FREEZING OR BELOW, FOR MINUTES TO SEVERAL HOURS.<br><br>5. **HYPOTHERMIA:**<br>CAUSE: HEAT LOSS EXCEEDING BODY'S HEAT PRODUCTION RESULTING IN BODY TEMPERATURE OF 95 DEGREES FAHRENHEIT OR LOWER.<br><br>6. **FIRST AID MEASURES:**<br>REMOVE WET CLOTHING, REST AFFECTED PART AND REWARM IT PROMPTLY TO ROOM TEMPERATURE, EXCEPT IN THE CASE OF FROSTBITE WHEN THAWING SHOULD ONLY BE ATTEMPTED BY MEDICAL PERSONNEL. TREAT INJURIES AND EVACUATE TO MEDIC OR TROOP MEDICAL CLINIC. | E<br>UNLIKELY | II<br>CRITICAL | LOW |
| 2. EYE/HEARING LOSS | D<br>REMOTE | II<br>CRITICAL | MEDIUM | **RANGE OIC OR SAFETY OFFICER WILL:**<br>1. BRIEF STUDENTS ON THE DANGERS OF LOW HANGING BRANCHES.<br><br>2. ENSURE QUALIFICATION COURSE DETAIL PERSONNEL WEAR SAFETY GOGGLES OR GLASSES WHILE STUDENTS ARE NEGOTIATING THE COURSE.<br><br>3. BRIEF SOLDIERS ON THE DANGER OF WATCHING A LIVE GRENADE AFTER THROWING.<br><br>4. ENSURE SOLDIERS ARE WEARING HEARING PROTECTION WHEN APPROPRIATE.<br><br>5. ENSURE EXTRA EARPLUGS ARE AVAILABLE. | E<br>UNLIKELY | II<br>CRITICAL | LOW |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
*CONTINUATION*

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 4 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 3. SOLDIER STRUCK BY LIGHTNING | E UNLIKELY | I CATASTROPHIC | MEDIUM | **RANGE OIC OR SAFETY OFFICER WILL:**<br>1. SUSPEND ALL TRAINING DURING ELECTRICAL STORMS.<br><br>2. NOTIFY RANGE CONTROL, BATTALION HEADQUARTERS (HQ) AND COMPANY HQ OF ANY INCIDENT.<br><br>3. CONTROL THE STUDENTS.<br><br>4. BRIEF STUDENTS ON ELECTRICAL STORM PLAN AND POINT OUT LOCATION TO GROUND GEAR AND AN OPEN AREA TO MOVE TO IN THE EVENT OF LIGHTNING.<br><br>**INSTRUCTORS WILL:**<br>1. ENSURE ALL STUDENTS GROUND THEIR INDIVIDUAL EQUIPMENT AND DON THEIR WET-WEATHER GEAR.<br><br>2. ENSURE ALL STUDENTS ARE SPREAD 5 TO 10 METERS APART IN AN OPEN AREA, UNTIL THE STORM CLEARS OR THE TRAINING UNIT DEPARTS. | E UNLIKELY | II CRITICAL | LOW |
| 4. SOLDIER BITTEN/STUNG BY SNAKES OR INSECTS | D REMOTE | I CATASTROPHIC | HIGH | **RANGE OIC OR SAFETY OFFICER WILL:**<br>DURING A SAFETY BRIEFING, INFORM THE STUDENTS OF THE VARIOUS TYPES OF WILDLIFE THAT ARE HAZARDOUS AND WARN THEM NOT TO HANDLE OR HARASS THE WILDLIFE DURING TRAINING. | E UNLIKELY | II CRITICAL | LOW |
| 5. FALLS | D REMOTE | II CRITICAL | MEDIUM | **OIC OR SAFETY OFFICER WILL:**<br>1. GIVE SAFETY BRIEFING ALERTING SOLDIERS TO TRIPPING HAZARDS: ROCKS, BRANCHES, FALLEN TREES, AND CREEK BEDS.<br><br>2. BRIEF SOLDIERS PRIOR TO THE HAND GRENADE QUALIFICATION COURSE (HGQC) ON SPECIFIC HAZARDS ASSOCIATED WITH THEIR RESPECTIVE COURSE. | E UNLIKELY | II CRITICAL | LOW |
| 6. DEMONSTRATI0N OF AN M14 INCENDIARY GRENADE COULD BURN RETINA IN EYES | D REMOTE | II CRITICAL | MEDIUM | **RSO WILL:**<br>BRIEF SOLDIERS NOT TO LOOK DIRECTLY AT THE GRENADE DURING DEMONSTRATION.<br><br>**INSTRUCTORS WILL:**<br>MONITOR SOLDIERS TO ENSURE THEY DO NOT LOOK AT THE GRENADE. | E UNLIKELY | III MARGINAL | LOW |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
*CONTINUATION*

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 5 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 7. SOLDIER MISSES BUNKER WHILE USING COOK OFF TECHNIQUE--FUSE RESIDUE FROM PRACTICE FUSE COULD HIT SOLDIER. | D REMOTE | III MARGINAL | LOW | **INSTRUCTORS WILL:**<br>1. MONITOR SOLDIERS TO ENSURE THEY DO NOT LOOK AT THE GRENADE.<br>2. DEMONSTRATE COOK OFF TECHNIQUES AND TALK SOLDIERS THROUGH THE TECHNIQUES.<br>3. ENSURE COOK OFF IS ONLY USED WITH PRACTICE FUSES.<br>4. ENSURE SOLDIERS TURN AND FACE THE REAR OF THE BUNKER TO KEEP FRAGMENTS FROM HITTING THEM IN THE FACE.<br>**RANGE OIC OR SAFETY OFFICER WILL:**<br>1. BRIEF ALL INSTRUCTORS ON THE SAFETY PROCEDURES TO BE FOLLOWED ON THE HGQC.<br>2. ENSURE SOLDIERS ON DETAIL ARE WEARING EYE PROTECTION AND BLACK GLOVES WHILE RETRIEVING GRENADES.<br>3. ENSURE SOLDIERS ON DETAIL ARE NOT RETRIEVING GRENADES UNLESS INFORMED BY THE GRADER AND ARE NOT THROWING GRENADES AT ANY TIME. | D REMOTE | IV NEGLIGIBLE | LOW |
| 8. BURNING HANDS ON EXPENDED PRACTICE GRENADES | D REMOTE | III MARGINAL | LOW | AMMUNITION NCO ENSURES SOLDIERS USE BLACK LEATHER SHELLS WHEN REFUSING PRACTICE FUSE HEADS. | D REMOTE | IV NEGLIGIBLE | LOW |
| 9. AMMUNITION/ PYROTECHNICS | D REMOTE | II CRITICAL | MEDIUM | **RSO WILL:**<br>ENSURE ALL WEAPONS HAVE BLANK ADAPTERS.<br>**AMMUNITION NCO:**<br>WILL KEEP ALL M67 HAND GRENADES IN THE AMMUNITION BUNKER AND UNDER GUARD AT ALL TIMES. | E UNLIKELY | II CRITICAL | LOW |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
*CONTINUATION*

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 6 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 10. SOLDIER HIT BY THROWN PRACTICE GRENADE | D REMOTE | III MARGINAL | MEDIUM | **RSO WILL:**<br>WARN SOLDIERS TO WATCH FOR OTHER SOLDIERS IN THE PATH OF FLYING PRACTICE GRENADES AND ACTIONS TO TAKE IF IN THE PATH OF A THROWN PRACTICE GRENADE.<br><br>**INSTRUCTORS WILL:**<br>1. ALLOW ENOUGH DISTANCE BETWEEN QUALIFYING SOLDIERS TO ENSURE OVERTHROWN PRACTICE GRENADES WILL NOT HIT SOLDIERS.<br><br>2. ENSURE SOLDIERS WEAR KEVLAR HELMET AT ALL TIMES WHILE ON, OR IN THE VICINITY OF, THE QUALIFICATION COURSE.<br><br>3. ENSURE SOLDIERS NOT INVOLVED IN THE HGQC STAY CLEAR OF THE QUALIFICATION COURSE | E UNLIKELY | III MARGINAL | LOW |
| 11. LOST SOLDIER | D REMOTE | II CRITICAL | MEDIUM | 1. SAFETY BRIEFING WILL INCLUDE MEASURES TO TAKE IF LOST OR SEPARATED.<br><br>2. A SITUATION REPORT WILL BE PROVIDED TO THE CHAIN OF COMMAND, BN, REGT, AND RANGE CONTROL.<br><br>3. A THOROUGH SEARCH WILL BE CONDUCTED FOR THE LOST SOLDIER IN COORDINATION WITH TRAINING COMPANY CADRE AND USING ALL AVAILABLE MANPOWER. | E UNLIKELY | III MARGINAL | LOW |
| 12. ROAD CONDITIONS | D REMOTE | II CRITICAL | MEDIUM | 1. RSO GIVES DETAILED SAFETY BRIEFING.<br><br>2. 5 M.P.H. SPEED LIMIT SIGNS ARE POSTED IN THE TRAINING AREA.<br><br>3. SAFETY BRIEFING INCLUDES CURRENT AND EXPECTED WEATHER CONDITIONS AND THE POSSIBLE EFFECT ON ROAD CONDITIONS. | D REMOTE | III MARGINAL | LOW |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
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**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 7 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 13. MANDATORY TRAINING PRIOR TO LIVE BAY | D REMOTE | III MARGINAL | MEDIUM | 1. SOLDIERS ARE TAUGHT PROPER GRIP AND THROWING TECHNIQUE AT "DISTANCE AND ACCURACY" TRAINING AND THE TRAINING IS REINFORCED IN THE MOCK BAY.<br>2. ALL SOLDIERS MUST SUCCESSFULLY COMPLETE "DISTANCE AND ACCURACY" AND MOCK BAY TRAINING PRIOR TO ENTERING THE LIVE BAY.<br>3. AT THE MOCK BAY SOLDIERS RECEIVE DEMONSTRATIONS AND REHEARSE THE EVACUATION DRILL AS STATED UNDER "RANGE SPECIFIC HAZARDS"<br>4. ALL INSTRUCTORS WILL REHEARSE AND ALL UNASSIGNED INSTRUCTORS WILL BE RECERTIFIED ON THE PIT EVACUATION DRILLS THE MORNING PRIOR TO CONDUCTING A LIVE BAY EXERCISE. PRIMARY INSTRUCTOR (PI) WILL CONTROL INSTRUCTOR ROTATION ENSURING A 10 MINUTE BREAK EVERY 30 MINUTES.<br>5. THE PIT NCO WILL BE A SSG CERTIFIED BY THE RANGE OIC AND A/2-29 COMPANY COMMANDER.<br>6. TRAINING COMPANY COMMANDER OR FIRST SERGEANT WILL BE ON SITE DURING LIVE GRENADE THROW IAW TRAINING BRIGADE POLICY. | E UNLIKELY | II CRITICAL | LOW |
| 14. RANGE SPECIFIC HAZARDS | | | | PIT NCO WILL DIRECT AND CONTROL THE SOLDIER HE HAS IN THE PIT WITH HIM AND MAINTAIN POSITIVE VISUAL OBSERVATION AND CONTROL OF THE LIVE GRENADES THE ENTIRE TIME THE SOLDIER IS IN THE PIT. | | | |
| 14(A). ARMED HAND GRENADE DROPPED IN LIVE BAY | D REMOTE | I CATASTROPHIC | HIGH | PIT NCO AND SOLDIER EXECUTE THE EVACUATION DRILL AS REHEARSED IN THE MOCK BAY, EXITING THE PIT OVER THE BACK WALL. PIT NCO WILL ENSURE, PHYSICALLY IF NECESSARY, THE SOLDIER GETS OVER THE BACK WALL. | E UNLIKELY | I CATASTROPHIC | MEDIUM |
| 14(B). ARMED HAND GRENADE DROPPED OFF BACK WALL | C OCCASIONAL | II CRITICAL | HIGH | PIT NCO AND SOLDIER EXECUTE SAFETY DRILL AS REHEARSED IN THE MOCK BAY. PIT NCO AND SOLDIER WILL ASSUME THE PRONE POSITION PARALLEL TO THE BACK WALL. PIT NCO WILL ENSURE THE SOLDIER'S HEAD IS BELOW THE TOP OF THE BACK WALL. | D REMOTE | II CRITICAL | MEDIUM |
| 14(C). SOLDIER WATCHES GRENADE AFTER THROW | C OCCASIONAL | II CRITICAL | HIGH | PIT NCO WILL PHYSICALLY PULL THE SOLDIER DOWN BEHIND THE FRONT WALL OF THE LIVE BAY. | D REMOTE | II CRITICAL | MEDIUM |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
*CONTINUATION*

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 8 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 14(D). SOLDIER FREEZES AFTER ARMING GRENADE | D REMOTE | II CRITICAL | MEDIUM | PIT NCO WILL REINFORCE THE COMMAND "THROW GRENADE." PIT NCO WILL GRASP SOLDIER'S HAND AND APPLY PRESSURE TO THE SAFETY LEVER. PIT NCO WILL WALK SOLDIER FORWARD AND EXTEND HIS HANDS OVER THE FRONT WALL. PIT NCO ENSURES SOLDIER'S HEAD IS BELOW THE FRONT WALL, THEN LETS THE SOLDIER DROP THE GRENADE IN FRONT OF THE LIVE BAY. | E UNLIKELY | II CRITICAL | LOW |
| 14(E). SOLDIER COOKS OFF GRENADE | C OCCASIONAL | I CATASTROPHIC | HIGH | PIT NCO CONTINUES TO REINFORCE THE COMMAND TO "THROW GRENADE." PIT NCO WILL NOT ATTEMPT TO GRAB THE GRENADE DUE TO THE RISK THAT SOLDIER MAY DROP IT IN THE LIVE BAY. | D REMOTE | I CATASTROPHIC | HIGH |
| 14(F). SOLDIER MILKS GRENADE PRIOR TO THROWING | C OCCASIONAL | I CATASTROPHIC | HIGH | IF PIT NCO HEARS METALLIC CLICK (GRENADE ARMED), HE WILL REINFORCE THE COMMAND "THROW GRENADE." IF PIT NCO DOES NOT HEAR A METALLIC CLICK (GRENADE NOT ARMED), HE WILL GRAB THE SOLDIER'S HAND AND APPLY PRESSURE TO THE SAFETY LEVER. PIT NCO WILL WALK THE SOLDIER TO THE FRONT WALL, ENSURE SOLDIER'S HEAD IS BELOW THE FRONT WALL, AND LET THE SOLDIER DROP THE GRENADE IN FRONT OF THE LIVE BAY. | D REMOTE | I CATASTROPHIC | HIGH |
| 14(G). SOLDIERS BEING HIT BY FRAGMENTS FROM THE M67 FRAGMENTATION GRENADE | D REMOTE | II CRITICAL | MEDIUM | 1. RSO ENSURES ALL SOLDIERS ARE WEARING KEVLAR VESTS WHILE FORWARD OF THE SAFETY BARRIER AND WHILE THROWING THE LIVE M67 FRAGMENTATION GRENADE.<br><br>2. OIC ENSURES MEDIC WITH AID BAG IS IN THE TOWER DURING LIVE GRENADE TRAINING, AND THE AMBULANCE IS NEXT TO RANGE SHACK.<br><br>3. PI/DRILL SERGEANTS (DSs) ENSURE KEVLAR HELMET IS WORN AT ALL TIMES.<br><br>4. SOLDIERS WILL BE UNDER OVERHEAD COVER AT ALL TIMES EXCEPT WHEN THEY THEMSELVES ARE THROWING THEIR HAND GRENADES.<br><br>5. DSs/INSTRUCTORS WILL CONTROL SOLDIERS UNDER OVERHEAD COVER. | E UNLIKELY | II CRITICAL | LOW |

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**Figure B-3. Example of risk management worksheet (continued).**

**RISK MANAGEMENT WORKSHEET**
*CONTINUATION*

**Operation/Training Event: MALONE 1 (HAND GRENADES)** **Page 9 of 9**
**Organization: A CO, 2/29th IN REGT** **Date: RECURRING EVENT** **Prepared by: SFC ROGERS**

| HAZARD | INITIAL PROBABILITY | INITIAL EFFECT | INITIAL RISK LEVEL | CONTROLS IMPLEMENTED | RESIDUAL PROBABILITY | RESIDUAL EFFECT | RESIDUAL RISK LEVEL |
|---|---|---|---|---|---|---|---|
| 14(H). HEARING LOSS FROM EXPLOSION | B LIKELY | III MARGINAL | MEDIUM | 1. DSs ENSURE SOLDIERS ARE WEARING HEARING PROTECTION AT ALL TIMES WHILE AT LIVE BAY.<br><br>2. PI ENSURES EXTRA EAR PLUGS ARE AVAILABLE. | D REMOTE | F NEGLIGIBLE | LOW |
| 14(I). PREMATURE DETONATION AT GRENADE ISSUE POINT | D REMOTE | I CATASTROPHIC | HIGH | 1. AMMUNITION NCO MAINTAINS NO MORE THAN TWO CASES (60 GRENADES) AT THE ISSUE POINT AT ANY ONE TIME.<br><br>2. AMMUNITION NCO ISSUES M67 FRAGMENTATION GRENADES DIRECTLY FROM CANISTER TO THE SOLDIER | E UNLIKELY | I CATASTROPHIC | MEDIUM |

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**Figure B-3. Example of risk management worksheet (continued).**